Optical Scan Ballot Design

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Taxonomy: Administrative, wholesale, probabilistic
Applicability: All voting systems

Method:

The perpetrator arranges the layout of the mark-sense ballots in such a manner that voters in favored jurisdictions are more likely to have their votes properly counted than voters in non-favored jurisdictions.

For example, where there are discretionary elements to the ballot layout, taking advantage of this discretion to create easy-to-read ballots in favored jurisdictions and hard-to-read ballots in non-favored jurisdictions. At the county level, for example, creating problematic instructions in some counties and clear instructions in others can be very effective.

Another effective design element is the false voting target, something that looks like the place where voters should mark their ballots but is in fact something else. A particularly popular version of this is a column of three-letter party abbreviations on the opposite side of the candidate names from the official voting targets and aligned exactly like them.

Ballot rotation can be used to make it difficult to hide popular candidates, in those states where rotation is mandated. Rotation is the listing of candidate names in different orders from precinct to precinct, nominally to avoid giving any one candidate the advantage of being listed first. Rotating an opponent's name into an obscure position in jurisdictions likely to favor that candidate can reduce the vote, particularly when candidate lists are long.

Finally, deliberate alignment errors on voting targets can be used, printing the target (or the index mark used by the scanner to locate the target) in such a way that marks in the printed target for the opposing candidate are less likely to be counted than marks for the favored candidate.

Resource requirements: The perpetrator must be in a position to control the design and printing of the ballots. For attacks targeted at the precinct level, this means that the perpetrator must either work for the ballot printer or the county. The printer can introduce alignment errors, while the county controls all of the textual content.

For attacks that exploit different ballot designs from county to county, the perpetrator must either control many county election offices or must work in a supervisory role at the

state level. The state officer who approves ballot content can do quite a bit if he simply gives a free rein to incompetent county election administrators in counties controlled by the opposition while extending help primarily to election administrators in counties favoring the ruling party.

Potential gain:

Rates of voter error have exceeded 10% in some jurisdictions during some elections. If this error can be controlled so that these high rates occur primarily in communities where opposition voters are likely to vote, the net benefit, in terms of the final election total, could easily be on the order of 1% or more.

Likelihood of detection:

Anything involving ballot design is public record, and the ballots themselves remain to be examined for 22 months after the election. Should a candidate suspect that there has been deliberate misprinting of index marks or voting targets, this can easily be detected if the ballots are available for examination. There is a common catch-22 here: In many jurisdictions, attempts to examine the actual ballots have been blocked because the person wanting to make the examination had no proof that there was anything wrong. The proof, of course, rested in the ballots themselves.

Bad human factors in ballot design is so widespread that any deliberate manipulation of the design can be easily hidden or blamed on incompetent underlings or local officials.

Countermeasures:

Preventative measures:

Discretionary elements of ballot design should be minimized in order to avoid misuse of this discretion.

Pre-election tests of tabulating equipment should include hand-marked ballots as well as machine-printed test ballots. Ideally, the hand-marked ballots should include ballots marked by representatives of the public as well as by employees of the election department, although these latter should be screened, in public, for mismarkings that might be intended to deliberately foil the test and bring the election into disrepute.

Detection measures:

Sample ballots should be published that accurately demonstrate all relevant elements of the ballot, allowing anyone to compare ballots from multiple jurisdictions and identify potential sources of confusion. Unfortunately, this publication can also provide the information necessary to create the counterfeit ballots needed for chain voting or ballot box stuffing.

Unused actual ballots from the election could be made available for inspection as soon

as this is possible without creating the possibility of fraud. Such ballots should be accounted for scrupulously, they should be defaced (for example, by being marked "sample ballot" in indelible ink), and released sufficiently long after the election that they could not be used as the basis for counterfeit ballots that could be used to manipulate the election.

These measures are of no value unless someone takes the time to critically examine the ballots disclosed by the government.

Citations:

In election 2000 in Florida, 5 counties had spurious voting targets such as DEM or (REP) to the right of the candidate name when the voting target (an oval) was to the left. In contrast, 27 counties had no obvious spurious target.
The remaining 7 optical-scan counties had intermediate designs. The statistical impact of this is difficult to assess because of other factors, but the rate of mismarking on ballots, as reported in the Miami Herald data, was almost 3 times the rate when there was an obvious false target than when there was not.

In election 2000 in Florida, 23 counties spelled out "For President" and "For Vice President" under each candidate's name, more than doubling the total amount of text on the presidential portion of the ballot compared to then 9 counties that listed the office names only once, at the head of the candidate list.
Again, the impact of this is difficult to assess because of other factors, but the rate of abstention (casting blank ballots) was about 2.5 times higher where office names were spelled out.

Again, from election 2000 in Florida, 24 counties split the list of presidential candidates across two columns of the ballot, while 12 managed to fit this list in one column. According to *Some had 1 from 'column A', 1 from 'Column B'*, Orlando Sentinel, January 28, 2001, the two column format was actually used in the sample ballot sent out by the state election office to those counties using ES&S central-count tabulating equipment.

Retrospective:

This form of election failure is clearly a violation of the voter's right to be weighed equally, but it is difficult to prove malice when so many ballots are routinely designed so badly. It is highly unlikely that most of the failures in this category are the result of deliberate fraud. Rather "this is the way we have always done things," or "this is the way the vendor told us to print the ballot," is probably the dominant explanation.